UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16
OF THE SECURITIES EXCHANGE ACT OF 1934

For the month of February 2022

(Commission File No. 001-38215)

NUCANA PLC
(Translation of registrant's name into English)

3 Lochside Way
Edinburgh EH12 9DT
United Kingdom
(Address of registrant's principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F ☒ Form 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101 (b) (1): ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101 (b) (7): ☐

Other Events

On February 22, 2022, NuCana plc (the "Company") issued a press release announcing the completed enrollment of patients in the ongoing Phase III NuTide:121 study required to conduct the second interim analysis. The press release is attached as Exhibit 99.1 hereto and is incorporated by reference herein.

The information in the attached Exhibit 99.1 is being furnished and shall not be deemed "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that Section, nor shall it be deemed incorporated by reference in any filing made by the Company under the Securities Act of 1933, as amended, or the Exchange Act, except as otherwise set forth herein or as shall be expressly set forth by specific reference in such a filing.

Exhibits

99.1 Press Release, dated February 22, 2022

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

NuCana plc

By: /s/ Donald Munoz
Name: Donald Munoz
Title: Chief Financial Officer

Date: February 22, 2022

Exhibit 99.1

NuCana Announces Enrollment of Required Number of Patients to Conduct Second Interim Analysis in the Phase III Biliary Tract Cancer Study

Enrollment of 644 Evaluable Patients Expected to Enable Second Interim Analysis in the Second Half of 2022

First Interim Analysis of 418 Evaluable Patients Remains on Track for the First Half of 2022

Data from Either Interim Analysis May Support an NDA Submission in the United States under the FDA's Accelerated Approval Program

Edinburgh, United Kingdom, February 22, 2022 (GLOBE NEWSWIRE) – NuCana plc (NASDAQ: NCNA) announced it has completed enrollment of the number of patients in the ongoing Phase III NuTide:121 study required to conduct the second interim analysis, which is expected to occur in the second half of 2022 after the 644th patient has completed 28 weeks of follow-up. The NuTide:121 study is comparing Acelarin combined with cisplatin to the global standard of care, gemcitabine plus cisplatin, as a first-line treatment for patients with advanced biliary tract cancer. As previously announced, NuCana expects to conduct the first interim analysis after the 418th patient has completed 28 weeks of follow-up, which is expected to occur in the first half of 2022.

NuCana believes that a statistically significant improvement in the Objective Response Rate (ORR) at either of the first two interim analysis, accompanied by positive trends in other endpoints, has the potential to allow for accelerated approval of a new drug application (NDA) for Acelarin in the United States. At the first interim analysis, an improvement in ORR of approximately 14% or more in the Acelarin plus cisplatin arm compared to the gemcitabine plus cisplatin arm would be statistically significant. Due to the larger number of patients included in the second interim analysis, an improvement in ORR of approximately 9% or more would be statistically significant. Recruitment in the NuTide:121 study, which is intended to enroll up to 828 patients, is ongoing and NuCana believes subsequent analyses could provide the confirmatory data to support full (regular) approval.

"We are delighted with the pace of enrollment in the NuTide:121 study especially against the backdrop of the Covid pandemic," said Hugh S. Griffith, NuCana's Founder and Chief Executive Officer. "With the enrollment of the 644th evaluable patient, we are now in position to complete two pre-specified interim analyses in 2022."

Mr. Griffith continued: "In the ABC-08 study of first-line patients with biliary tract cancer, Acelarin plus cisplatin achieved an ORR of 44% among the evaluable population. This compared favorably to the ORR of 26% achieved among evaluable patients treated with gemcitabine plus cisplatin in the ABC-02 study, which established this regimen as the global standard of care. Biliary tract cancer is a devastating disease and we believe Acelarin could represent a new option to help address the significant unmet need for more effective medicines."

About NuTide:121

NuTide:121 is a global, multi-center, 1:1 randomized Phase III study comparing Acelarin, a ProTide transformation of gemcitabine, in combination with cisplatin, to gemcitabine in combination with

cisplatin in up to 828 patients with advanced biliary tract cancer who have not previously received treatment for advanced disease. The primary endpoints of NuTide:121 are Overall Survival (OS) and Objective Response Rate (ORR) and the FDA-approved protocol includes three interim analyses. Based on the statistical analysis plan, and subject to any further regulatory guidance, the Company believes that a statistically significant improvement in ORR at either of the first two interim analyses, accompanied by positive trends in other endpoints, has the potential to allow for an accelerated approval of a new drug application (NDA) for Acelarin in the United States. Under this scenario, the NuTide:121 study would continue and the Company believes it could use the data from subsequent analyses as the confirmatory data required to support full (regular) approval. There are currently no agents approved for the first-line treatment of patients with biliary tract cancer.

About Biliary Tract Cancer

Biliary tract cancer, including cholangiocarcinoma, gallbladder and ampullary carcinoma, are a group of cancers originating in the biliary tract. The biliary tract is comprised of the gallbladder and interconnecting ducts responsible for the transport of bile from the liver to the gallbladder and small intestine. Approximately 178,000 new cases of biliary tract cancer are diagnosed each year worldwide, with more than 16,000 of those diagnoses in the United States. There are currently no agents approved for the first-line treatment of patients with advanced biliary tract cancer; however, the worldwide standard of care in these patients is the combination of gemcitabine and cisplatin. Patients receiving this regimen have a median overall survival of 11.7 months.

About NuCana

NuCana is a clinical-stage biopharmaceutical company focused on significantly improving treatment outcomes for patients with cancer by applying our ProTide technology to transform some of the most widely prescribed chemotherapy agents, nucleoside analogs, into more effective and safer medicines. While these conventional agents remain part of the standard of care for the treatment of many solid and hematological tumors, their efficacy is limited by cancer cell resistance mechanisms and they are often poorly tolerated. Utilizing our proprietary technology, we are developing new medicines, ProTides, designed to overcome key cancer resistance mechanisms and generate much higher concentrations of anti-cancer metabolites in cancer cells. NuCana's robust pipeline includes three ProTides in clinical development. Acelarin and NUC-3373, are new chemical entities derived from the nucleoside analogs gemcitabine and 5-fluorouracil, respectively, two widely used chemotherapy agents. Acelarin is in a Phase 3 study for patients with advanced biliary tract cancer. NUC-3373 is in a Phase 1b/2 study in patients with metastatic colorectal cancer. Our third ProTide, NUC-7738, is a transformation of a novel anti-cancer nucleoside analog (3'-deoxyadenosine) and is in a Phase 1/2 study for patients with advanced solid tumors.

Forward-Looking Statements

This press release may contain "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995 that are based on the beliefs and assumptions and on information currently available to management of NuCana plc (the "Company"). All statements other than statements of historical fact contained in this press release are forward-looking statements, including statements concerning the Company's planned and ongoing clinical studies for the Company's product candidates and the potential advantages of those product candidates, including Acelarin,

NUC-3373 and NUC-7738; the initiation, enrollment, timing, progress, release of data from and results of those planned and ongoing clinical studies; the Company's ability to submit an NDA for Acelarin under the FDA's accelerated approval program, or at all; the Company's goals with respect to the development, regulatory pathway and potential use, if approved, of each of its product candidates; and the utility of prior non-clinical and clinical data in determining future clinical results. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expects," "plans," "anticipates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other comparable terminology. Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the Company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. These risks and uncertainties include, but are not limited to, the risks and uncertainties set forth in the "Risk Factors" section of the Company's Annual Report on Form 20-F for the year ended December 31, 2020 filed with the Securities and Exchange Commission ("SEC") on March 4, 2021, and subsequent reports that the Company files with the SEC. Forward-looking statements represent the Company's beliefs and assumptions only as of the date of this press release. Although the Company believes that the expectations reflected in the forward-looking statements are reasonable, it cannot guarantee future results, levels of activity, performance or achievements. Except as required by law, the Company assumes no obligation to publicly update any forward-looking statements for any reason after the date of this press release to conform any of the forward-looking statements to actual results or to changes in its expectations.

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